

1/3 031 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--ELECTROPHYSIOLOGICAL FEATURES OF THE NERVOUS SYSTEM WITH MALIGNANT  
GROWTH AND SOME INFLUENCES ON IT -U-  
AUTHOR-(04)-BALITSKIY, K.P., VEKSLER, I.G., TSAPENKO, V.F., KAPSHUK, A.P.

COUNTRY OF INFO--USSR

SOURCE--FIZIOLOGICHNIY ZHURNAL, 1970, VOL 16, NR 3, PP 345-350

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SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ELECTROPHYSIOLOGY, TISSUE TRANSPLANT, REPRODUCTIVE SYSTEM,  
ELECTROENCEPHALOGRAPHY, ANTIEDPLASTIC DRUG, CARCINOMA

CONTROL MARKING--NO RESTRICTIONS

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STEP NO--UR/0238/70/016/003/0345/0350

CIRC ACCESSION NO--AP0115330

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PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0115330

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INVESTIGATIONS SHOWED THAT DURING PROGRESSIVE GROWTH OF THE BROWN PEARCE CARCINOMA INOCULATED INTRATESTICULARLY AND, AS A RULE, RESULTING IN IRREVERSIBLE CANCINATION, THE ELECTROENCEPHALOGRAMS OF RABBITS DISPLAY TWO PHASES OF MAIN CHANGES PHASE OF RAISED ACTIVITY AND THAT OF DEPRESSION. WHILE IN RABBITS WITH CARCINOMA, INOCULATED HYPODERMICALLY AND INTRAMUSCULARLY, ONLY THE PASE OF RAISED ACTIVITY OF INDICES APPEARS. THEN THE ELECTROENCEPHALOGRAM NORMALIZES. THE INVESTIGATION SHOWED, THAT THE RABBITS WITH THE BROWN PEARCE CARCINOMA, TRANSPLANTATED INTRAMUSCULARLY AND GREATED WITH ZYMOSAN AND ANTITUMOUR DRUG CYCLOPHOSPHAN HAVE THE BASE INDICES OF ELECTROENCEPHALOGRAM MORE LOWER AND THE DIFFERENCE FROM THE INITIAL BIOELECTRIC ACTIVITY IS SMALLER, THEN THE ANIMALS, TREATED ONLY WITH CYCLOPHOSPHAN IN THE SAME DOSAGE. THE RESEARCHES PRESENTED SHOW THAT THE DEVELOPMENT OF A TUMOUR PROCESS IS ACCOMPANIED BY A FREQUENCY DECREASE OF THE AFFERENT IMPULSATION WHICH IS RECEIVED IN THE CENTRAL NERVOUS SYSTEM FROM THE REGION OF THE TUMOUR DEVELOPMENT. AT THE TUMOUR RESOLUTION THE FREQUENCY OF THE AFFERENT IMPULSATION IS RESTORED TO THE INITIAL VALUE; AT THE IRREVERSIBLE DEVELOPMENT OF THE TUMOUR THE DROP OF FREQUENCY CONTINUES UP TO ANIMAL DEATH. THE INVESTIGATION INDICATES THAT THE NATURE AND STAGE OF THE TUMOUROUS PROCESS HAVE A SUBSTANTIAL EFFECT ON THE FUNCTIONAL STATE OF VARIOUS DIVISIONS OF THE NERVOUS SYSTEM. THE DYNAMICS OF THE CHANGES IN THE ELECTROENCEPHALOGRAM IS, TO A CERTAIN EXTENT, AN EVIDENCE OF THE NATURE OF THE COURSE OF THE MALIGNANT PROCESS.

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PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0115330

ABSTRACT/EXTRACT--THE DEVELOPMENT OF THE TUMOUR AFFECTS THE CHARACTER OF  
THE AFFERENT IMPULSATION. FACILITY: LABORATORY OF PATHOGENESIS  
OF TUMOURS, RESEARCH INSTITUTE OF EXPERIMENTAL AND CLINICAL ONCOLOGY,  
KIEV.

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USSR

UDC 612.8+612.766.1

NAVAKATYRYAN, O. O., KUNDIYEV, Yu. I., LYSYNA, G. G., BUZUNOV, V. P.,  
HRYSHKO, F. I., DERKACH, V. S., KAPSHUK, O. P., KYRYENKO, A. Ye., KARAKASHYAN,  
A. N., KOVAL'OVA, G. I., RATUSHNA, A. M., TOMASHEVC'KA, L. I., NAGORNA, A. M.,  
and MAYDYKOV, Yu. L., Kiev Institute of the Work Hygiene and Occupational  
Diseases, Kiev

"Nervous Emotional Stresses as a Problem of Modern Work Physiology"

Kiev, Fiziologichnyy Zhurnal, Vol 18, No 4, Jul/Aug 72, pp 535-546

Abstract: The introduction of machines and automatic control instrumentation into production lines at plants and factories and at many other institutions requires of workers rapid coordination of actions combined with mental activity. The volume of information input which requires a combination of physical and mental ability has been increasing tremendously for the last decade. This has produced nervous and emotional stresses and disturbances in the normal functions of many human organs. Analysis of many workers from various branches of industry as well as people occupied with mental work has shown that modern technology imposes heavy stresses on an individual which are accompanied by abnormal function of the adrenal glands, and hypothalamus, and the hypophyseal and sympatho-adrenal systems. Measurements have shown that corticosteroid blood and urine

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NAVAKATYKYAN, O. O., et al., Fiziologichnyy Zhurnal, Vol 18, No 4, Jul/Aug 72, pp 535-546

levels exceed the norm by as much as 42-57% in people under heavy stress. Emotional stress with distortion in the function of many systems were more often encountered among the young (17-18 year olds). These malfunctions included the secretion of adrenalin and noradrenalin, and disturbances in hemodynamics. Shifts in physiological functions among different occupational groups under identical stresses occur at different times and are closely related to age. They were more pronounced among older people (31-40 years old). The cardiovascular system occupies a prominent place in labor physiology, and there are many methods and approaches to study it. Some literature methods and those of the authors are described, including instrumentation. Mental work which is accompanied by nervous-emotional stresses influences profoundly the cardiovascular system within a wide range of deviations, including pathological functional disturbances and hypertension. The same is true for other occupations as well. The authors recommend the rational use of working hours and rest periods to avoid overstresses.

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USSR

UDC 548.736

KAPSHUKOV, I. I., VOLKOV, Yu. F., MOSKVICHEV, Ye. P., LEBEDEV, I. A., and  
YAKOVLEV, G. N., Scientific Research Institute of Atomic Reactors, Melekess

"Crystal Structure of Uranyl Tetranitrates"

Moscow, Zhurnal Strukturnoy Khimii, Vol 12, No 1, Jan-Feb 71, pp 94-98

Abstract: The structure of complex uranyl compounds of the type  $M_2[UO_2(NO_3)_4]$  was studied, where  $M = NH_4, Rb,$  and  $Cs$ . All the compounds are isomorphous, monoclinic. The structure of ammonium and rubidium tetranitroureanates was elucidated by means of three-dimensional diffraction data; the cesium complex was studied by projection. The structure consists of cations  $M^+$  and complex anions  $[UO_2(NO_3)_4]^{2-}$ . In the centrally symmetric anion complex two nitrate groups are attached to the uranium atom bidentantly and the other two -- monodentantly. In this fashion a hexacoordinated equatorially planar system of oxygen atoms around the uranium is formed. The U-O bond is hortened, being 1.78, 1.77, and 1.85 Å for  $NH_4, Rb,$  and  $CS$  respectively.

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USSR

UDC 616-002.828.084

SHESTAK, A. I., KAPTSEVICH, M. A. and RYZHIKOV, M. I.

"Sanitary and Epidemic Control Measures in Foci of Deep Mycoses"

Minsk, Zdravookhraneniye Belorussii, No 2, 1973, pp 53-57

Abstract: Brief comments on the prevalence of coccidioidomycosis, histoplasmosis, blastomycosis, and similar fungus diseases, biology of the causative agents, similarity of mycoses to some other diseases, prognosis, and treatment are followed by a discussion of the steps taken to prevent mycoses from assuming epidemic proportions. These include immediate imposition of quarantine as soon as a focus is discovered, sampling of soil, water, etc. for use in laboratory determination of the pathogen, widespread application of disinfectants, and house-by-house checks to find and treat humans or animals with the disease. A chart summarizes the published data on the incubation period, mechanism of infection, site of the process, clinical symptoms, differential diagnosis of the major mycoses.

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USSR

UDC 531.781.2

BARANOV, I. A., KOTEL'NIKOV, V. YE., GORSHKOV, V. A., and KAPTUR, G. YE.,  
Moscow Aviation Technological Institute

"A Method for Determination of Ball-Bearing Clearance"

USSR Author's Certificate No 366367, Filed 6 Jul 70, Published 16 Jan 73  
(from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7,  
Mar(a) 73, claim No 1460181/25-28)

Translation: A method for the determination of ballbearing clearance in the setting in the shaft and in the housing, including a determination of axial rigidity of the bearing by the frequency of resonant vibration, distinguished by the fact that in order to increase the accuracy, ball-bearing axial rigidity after the setting of an internal ring and after the setting of an external ring, the value to the clearance is determined by the difference in the values of the rigidity.

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KAPTUR, G. Ye.

UDC 621.822.7

EFFECT OF VARIABLE AXIAL RIGIDITY OF BALL BEARINGS  
ON VARIATION OF AXIAL LOAD ON CYCLOMOTOR BEARINGS

JPRS 56237  
12 June 1972

[Article by I. A. Baranov, G. Ye. Kaptur, Moscow Aviation Technology Institute; Leningrad, Izvestiya Vsesoyuznogo Nauchno-Issledovatskogo Tsentra Prikladnoy Mekhaniki, No. 3, 1972, signed to press 25 February 1971. pp 12-13]

It is shown that the variable axial rigidity of ball bearings, caused by defects in the rings and balls, causes the axial load on the cycomotor bearings to change.

Modern cycomotors are assembled with preliminary axial load on the bearings for the purpose of ensuring stable motion of the center of mass [1]. An increase in the axial load increases the stability of the position of the center of mass, but this substantially decreases cycomotor service life.

We will examine the influence of variable axial rigidity of ball bearings on change in the preliminary axial load. A real ball bearing has various defects: irregularities of the rings and balls, variations in ball dimension, etc. These defects, during rotation of the ball bearing, should cause periodic change in its axial rigidity, even under constant axial load. The period of change of rigidity obviously is equal to the least common multiple of three periods: period of rotation of the bearing ring (of rotor), period of rotation of the balls and period of rotation of the separator relative to the fixed ring. Assuming that the elastic relative axial displacement  $\Delta b$  of the rings of a perfect bearing and the axial load are related by the relation [2]

$$P = C_{\Delta b}^{\frac{1}{2}} \quad (1)$$

where  $C$  is a constant for each bearing, the axial rigidity of the bearing  $K_{\Delta b}$  can be represented in the form

$$K_{\Delta b} = \frac{dP}{d\Delta b} = \frac{1}{2} C^{\frac{1}{2}} P^{\frac{1}{2}} \quad (2)$$

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USSR

UDC 51 + 631.4

CHUMACHENKO, I. N., Doctor of Agricultural Sciences, ~~KAFTSYNEL', Yu. M.~~,  
Candidate of Biological Sciences, LASER, V. S., and PUSHENKOV, V. C., All-Union  
Institute of Fertilizers and Agro-Soil Science, VIUA

"Mathematical Methods for Studying the Optimum Phosphate Level in Soil"

Moscow, Vestnik Sel'skokhozyaystvennoy Nauki, No 5, 1970, pp 86-90

Abstract: Field experiments with different levels of phosphate fertilizers, conducted in irrigated grey soils of cotton fields in Tadzhik SSR, showed that the optimum content of mobile  $P_2O_5$  is around 28-32 mg/kg of soil. With a soil content above 35 mg  $P_2O_5$ /kg of soil, the yield of raw cotton drops. Harvest data for raw cotton during three years of experiments showed that the ratio between the content of mobile  $P_2O_5$  in soil and the cotton yield is as follows:

$$y = 35.1 + 0.344 \cdot P - 0.5675 \cdot P^2, \text{ where}$$

y is the yield in centners per hectare, and P is mg  $P_2O_5$ /per kg of soil.

Gyroscopic

USSR

UDC: 621.822.7

BARANOV, I. A., ~~KAPTUR, G. Ye.~~, Moscow Institute of Aviation Technology

"Effect Which the Variable Axial Rigidity of Ball Bearings Has on the Supports of a Gyromotor"

Leningrad, Izvestiya VUZov, Priborostroyeniye, Vol 15, No 3, 1972, pp 79-83

Abstract: Gyromotors are currently assembled with axial preloading to ensure a stable position of the center of mass. Increasing the axial load improves the stability of the center of gravity, but appreciably reduces the service life of the gyromotor. This paper deals with the effect which variable axial rigidity of ball bearings has on variation in axial preloading. The variation in axial rigidity of real ball bearings is due to irregularities in the races and balls, differences in the sizes of the balls and so forth. These defects cause periodic changes in axial rigidity even under a constant axial load. Formulas are derived which show the relation between the periods of rotation of the bearing components, the axial rigidity of the bearing, and the periodic change in the axial load on the gyromotor supports. This variable loading is apparently one of the reasons for the reduced service life of the gyromotor. Two figures, bibliography of three titles.

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Acc. Nr: **AP0049503** — Abstracting Service:  
CHEMICAL ABST. 5/70

Ref. Code:

**4R0098**

**K**

100843g Unsaturated organogermanium compounds. VI. Reaction of alkylolithium compounds with 1,3-diynes organogermanes. Kaptyug, O. I.; Stadnichuk, M. D.; Petrov, A. A. (Leningrad. Tekhnol. Inst. im. Lensovet, Leningrad, USSR). Zh. Obshch. Khim. 1970, 40(1), 118-24 (Russ). RLi add to double bonds that are remote from Ge in organogermanium compds. of the 1,3-diyne class considerably less readily than they do for similar Si compds. The main reaction is substitutive metalation at Me or CH<sub>3</sub> groups connected to the triple bond. The relative reactivity of 1,3-diynes of this nature can be disposed in descending order: Si, Ge, C. A mixt. of EtMgBr and 1,3-pentadiyne treated with ice-salt cooling with Me<sub>3</sub>GeBr and refluxed 8 hr gave 36% 1-trimethylgermanyl-1,3-pentadiyne (I), b<sub>p</sub> 42-2.5°, d<sub>4</sub><sup>20</sup> 1.0869, n<sub>D</sub><sup>20</sup> 1.5072; similarly were prepd. 86% 1-trimethylgermanyl-1,3-hexadiyne (II), b<sub>p</sub> 48.5-0.5°, 1.0590, 1.5058; 56% 1-trimethylgermanyl-1,3-heptadiyne (III), b<sub>p</sub> 58.5°, 1.0355, 1.5042; and the previously reported Et<sub>3</sub>Ge

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analogs of these. Adding 4.4 g 1,4-hexadiyne to EtMgBr from 2 g Mg, keeping the mixt. 8 hr, then refluxing 2 hr gave only 3 g Ge-contg. product,  $b_p$  71-3°,  $d_4^{20}$  1.1007,  $n_D^{20}$  1.4810,  $C_{17}H_{14}Ge$ . BuLi from 3.5 g Li and 30.5 g BuBr in  $Et_2O$  under N at -30° treated with I (5.8 g) and held 40 min gave 55% product,  $b_p$  30-50°,  $C_{17}H_{14}Ge$ . Similarly, II and BuLi gave 1-trimethylgermanyl-4-ethyl-3-octen-1-yne,  $b_p$  79-81°, 0.9886, 1.4840, which heated with MeOH-KOH, then hydrogenated, gave 4-ethyloctane. II and iso-BuLi gave a mixt. of at least 4 products,  $b_p$  41-8°; a similar mixt. formed with  $Me_3CLi$ ,  $b_p$  56-64°. III and BuLi gave 69% isomerizates,  $b_p$  60-92°, and 27% adducts,  $b_p$  73-4°,  $C_{17}H_{14}Ge$ . 1-Triethylgermanyl-1,3-hexadiyne and BuLi gave 69% isomerizates,  $b_p$  91-9°, and some 1-triethylgermanyl-4-ethyl-3-octen-1-yne,  $b_p$  107-8°, 0.9763, 1.4885.

G. M. Kosolapoff

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1/2 022 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--VITAMIN B SUB15 AND METHIONINE ACTION ON THE LEVEL OF PRO AND ANTI  
COAGULANTS IN EXPERIMENTAL HYPERCHOLISTERINEMIA -U-  
AUTHOR-(02)-KAPTYUKH, R.F., BYSHEVSKIY, A.SH.  
COUNTRY OF INFO--USSR  
SOURCE--VOPROSY PITANIYA, 1970, NR 2, PP 48-51  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--VITAMIN B COMPLEX, DIET, METHIONINE, CHOLESTEROL, BLOOD  
COAGULATION, INHIBITION, FIBRINOGEN, FIBRINOLYSIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1985/1638 STEP NO--UR/0244/70/000/002/0048/0051  
CIRC ACCESSION NO--AP0101693  
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CIRC ACCESSION NO--AP0101693

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PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INTRODUCTION OF VITAMIN B SUB15 AND METHIONINE (5 MG AND 6.7 MG PER 100 G OF BODY WEIGHT) TOGETHER WITH A STANDARD RATION CONTAINING CHOLESTEROL AND 6 METHYLURACIL WAS APT TO STRENGTHEN SOMEWHAT THE TENDENCY TOWARDS HYPERCOAGULATION OBSERVED IN ANIMALS. ADMINISTRATION OF VITAMIN B SUB15 IN A DOSE OF 20 MG-100 G TOGETHER WITH THE SAME RATION MITIGATED SYMPTOMS OF INHIBITED ANTICOAGULATION SYSTEM, NOT ONLY HINDERING SUPPRESSION OF THE FIBRINOLYTIC AND FIBRINOGENOLYTIC ACTIVITY, BUT ALSO RAISING IT, AS COMPARED TO CONTROLS RECEIVING NO PANGAMATE. GIVEN IN AN ADEQUATE DOSE (26.8 MG-100 G) METHIONINE INTRODUCED WITH THE RATION CONTAINING CHOLESTEROL AND 6 METHYLURACIL DID NOT PRODUCE ANY SUBSTANTIAL CHANGES IN THE COAGULATION SYSTEM. IT IS ASSUMED THAT LOW DOSES OF VITAMIN B SUB15 AND METHIONINE GIVE RISE TO SIMILARLY ORIENTED CHANGES IN THE HEMOCOAGULATION SYSTEM, THIS BEING DUE TO THEIR PARTICIPATION IN THE TRANSMETHYLATION PROCESSES. THE FIBRINOLYTIC EFFECT OF HIGH VITAMIN B SUB15 DOSES IS TO BE ASCRIBED TO ITS INHIBITING ACTION OF THE ANTIPLASMIN.

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KAPUL'TSEVICH, Yu. G.

50: JPRS 55100

4 FEB 72

UDC 582.282.23.057:629.78.048

EFFECT OF FLIGHT CONDITIONS ON GENETIC STABILITY OF DIPLOID YEASTS

Article by Yu. G. Kapul'tsevich, V. N. Kozlovskiy, V. N. Bunevskiy, K. N. Bilitskiy, and V. G. Peltin; Moscow, *Kosmicheskaya Biologiya i Meditsina*, Vol. 5, No. 1, 1971, submitted for publication 25 June 1971, pp 10-14, 17

**Abstract:** During the flight experiment genetic stability of yeast cells *Saccharomyces ellipsoideus*, strain Hg-1139-H, was studied by registering saltant colonies. No qualitative or quantitative differences between flight and ground samples were found with respect to changes in saltant emergence frequency or morphology.

G. A. Nadson and G. S. Yilipov, by exposure of the mold fungus *Nucor* during vegetative reproduction. Later, in papers on the formation and study of new strains, G. A. Nadson and his colleagues used primarily yeast cells. The strains obtained by using ionizing radiations were called radiostrains by these authors.

In obtaining radiostrains they irradiated either an aqueous suspension of yeast cells with their subsequent sowing on agarized must or on a culture growing on a hard medium. Regardless of the irradiation method, among the growing colonies it was possible to discover colonies containing mutant sectors or sectors completely changed in comparison with the control. These colonies also served as initial material for separating out radiostrains by means of their repeated resowing.

Thus, radiostrains of several types were obtained. They differed from the initial strains in size, shape and color of the colonies, size and shape of the cells, rate of growth, intensity of fermentation, etc. Many radiostrains retained their properties over the course of tens and sometimes hundreds of resowings. On this basis G. A. Nadson was inclined to classify them as mutants, but later as "valiants," thereby endeavoring to emphasize that the nature of the hereditary changes leading to the appearance of radiostrains is unknown.



KAPUL'TSEVICH, Yu. G.

EXISTENCE OF THE RADIATION EFFECT IN YEASTS IRRADIATED BY GAMMA QUANTA ON EARTH AND IN SPACE

So: JPRS 55100  
4 FEB 71

UDC 562.282.232.057

Article by V. N. ~~Shchegolev~~ <sup>Shchegolev</sup>, ~~Y. G. Kapul'tsevich~~ <sup>Y. G. Kapul'tsevich</sup>, ~~V. I. Korogodin~~ <sup>V. I. Korogodin</sup> and ~~S. A. Chupratov~~ <sup>S. A. Chupratov</sup>, ~~Kosmicheskiye Biologiya i Meditsina~~ <sup>Kosmicheskiye Biologiya i Meditsina</sup>, Vol. 5, No. 6, 1971, submitted for publication 25 June 1971, pp. 14-16.

**Abstract:** During the flight experiment a study was made of the effect of specific flight factors on preirradiated yeast cells *Saccharomyces ellipsoideus*, strain Mex1 139-B. The 6-day space flight produced insignificant effects on the occurrence and development of previously existing damage. Prolonged storage of cells in a state of inhibited metabolism influenced the radiation effects to a greater extent.

In studying the modifying effect of weightlessness and other nonradiation flight factors on the radiosensitivity of cells one must contend with the influence of these factors on the aftereffect of primary radiation damage. This problem can be successfully solved with the in-flight exposure of cells which prior to the flight were irradiated on the earth.

Depending on the conditions for maintaining the irradiation of cells on a satellite under given experimental conditions, it is possible to study the influence of specific flight factors on the processes of occurrence and recovery from potential radiation damage (with exposure of nondividing cells which have just been irradiated), on the kinetics of appearance of already formed damage (assuming that the cells divide during flight), and finally, on the outcome of the forming damage in an undeveloped state (in the case of the in-flight exposure of recovered cells).

The diploid yeast cells extensively used in stellar investigations in general radiobiology are a convenient object for studying these problems. For these reasons they were used in the experiment described below, carried out on the Kosmos-368 artificial earth satellite.

USSR

UDC 577.391:663.12/14

KAPUL'TSEVICH, YU. G., Scientific Research Institute of Medical Radiology,  
Academy of Medical Sciences USSR, Obninsk

"Mathematical Modeling of Cell Reactions to Irradiation"

Moscow, Radiobiologiya, Vol 12, No 1, Jan/Feb 72, pp 3-18

Abstract: A detailed quantitative analysis of yeast cell reactions to irradiation showed that neither the models of the hit principle not the concept of biological stochastics can describe the entire range of effects observed in experiments. The author proposes a probability model which synthesizes the two principles. According to this model, the amount of energy consumed by the cell (number of hits) does not strictly determine the death or survival of the cell, rather, it indicates some probability that the cell will not divide. This probability decreases with number of hits and remains constant for many cell generations. The advantage of the probability model is that it not only adequately describes the patterns of various cell reactions to irradiation, but also permits prediction of the variety of biological effects of irradiation. It can be used to synthesize the results of unrelated experiments and to analyze the different reactions of different strains of yeast cells to irradiation as different strains of yeast cells to irradiation as different manifestations of the same damaging effect.

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1/2 035 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--ANGULAR AND TEMPERATURE FUNCTIONS OF ION ELECTRON AND ION ION  
EMISSION IN A GALLIUM ARSENIDE SINGLE CRYSTAL -U-  
AUTHOR-(03)-KAPUSTA, O.I., LEBEDEV, S.YA., OMELYANOVSKAYA, N.M.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TVERD. TELA 1970, 12(3), 913-15  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, PHYSICS  
TOPIC TAGS--GALLIUM ARSENIDE, SINGLE CRYSTAL, THERMAL EFFECT, ION  
EMISSION, ELECTRON  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/1493 STEP NO--UR/0181/70/012/003/0913/0915  
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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF ANGULAR AND TEMP. DEPENDENCE OF IONIC ELECTRONIC AND IONIC IONIC (FOR POS. IONS) EMISSION DURING BOMBARDMENT OF GAAS SINGLE CRYSTALS BY AR IONS WITH AN ENERGY OF 70 KEV. THE MEASUREMENTS WERE CARRIED OUT UNDER THE FOLLOWING CONDITIONS: VACUUM IN THE TARGET REGION 2 TIMES 10 PRIME NEGATIVE 7 MM HG WITHOUT BEAM AND (5-6) TIMES 10 PRIME NEGATIVE 7 MM HG WITH THE BEAM, C.D. ON THE TARGET 0.5 MA.-CM PRIME 2, TEMP. INTERVAL OF THE MEASUREMENTS 100-600 DEGREES. ANGULAR DEPENDENCE IS GIVEN OF IONIC IONIC AND IONIC ELECTRONIC EMISSIONS OF THE (100) FACE ON ITS ROTATION AROUND THE (100) AXIS AND THE (110) AXIS. THE CURVES WERE RECORDED AT THE SPECIMEN TEMP. OF 550 DEGREES. BOTH ANGULAR DEPENDENCES ARE CHARACTERIZED BY ANISOTROPY DETD. BY A REGULAR DISTRIBUTION OF TARGET ATOMS. THE SAME DEPENDENCES FOR THE (111) FACE (ON ROTATION AROUND THE (110) AXES AT 550 DEGREES SHOWS ITS INVERSE COSINE DEPENDENCE. TEMP. DEPENDENCES OF IONIC IONIC AND IONIC ELECTRONIC EMISSIONS CAN BE USED TO STUDY THE KINETICS OF THE ANNEALING OF DEFECTS. THE COEFF. OF IONIC IONIC EMISSION REACHES A PLATEAU AT HIGHER TEMPS. THAN THE COEFF. OF IONIC ELECTRONIC EMISSION. THIS INDICATES THAT IONIC IONIC EMISSION IS MORE SENSITIVE TO THE PURITY OF THE SURFACE.

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1/2 038 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--ANGULAR AND TEMPERATURE DEPENDENCES OF THE SECONDARY EMISSION OF  
INDIUM ANTIMONIDE SINGLE CRYSTALS DURING ARGON ION BOMBARDMENT -U-  
AUTHOR--(03)-KAPUSTA, O.I., LEBEDEV, S.YA., OMELYANOVSKAYA, N.M.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TVERD. TELA 1970, 12(4), 995-1000  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS, MATERIALS  
TOPIC TAGS--INDIUM ANTIMONIDE, SINGLE CRYSTAL, ARGON, ION BOMBARDMENT,  
AMORPHOUS MATERIAL, ION EMISSION, ELECTRON EMISSION, THERMAL EFFECT  
CONTROL MARKING--NO RESTRICTIONS  
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PROXY REEL/FRA--1998/0919 STEP NO--UR/0181/70/012/004/0995/1000  
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CIRC ACCESSION NO--AP0121521

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. ION ELECTRON AND ION ION EMISSION WERE INVESTIGATED, DEPENDING ON THE TARGET TEMP. AND THE ANGLE OF INCIDENCE OF AR IONS WITH AN ENERGY OF 70 KEV ON (111) AND (110) FACES OF SINGLE CRYSTAL INS8, AND THE DEPENDENCE WAS DETD. OF THE COEFFS. OF ION ELECTRON EMISSION ON THE ENERGY OF BOMBARDING IONS AT NORMAL INCIDENCE ON THE ABOVE FACES. AT SUFFICIENTLY HIGH TARGET TEMPS., THE RESULTS AGREE QUAL. WITH THE MODEL OF TRANSPARENCY IF ACCOUNT IS TAKEN OF THE SHIFTS OF ATOMS IN THE SURFACE LAYERS OF THE CRYSTAL. IN THE TEMP. VARIATIONS OF THE COEFF. OF ION ELECTRON EMISSION, 5 DIFFERENT REGIONS ARE OBSD., THE EXISTENCE OF WHICH IS RELATED TO ANNEALING OF RADIATION DEFECTS AND TO VARIATIONS IN THE AMORPHOUS LAYER PRESENT ON THE SURFACE.

UNCLASSIFIED

1/2 024  
UNCLASSIFIED  
TITLE--INTEGRATING DIGITAL VOLTMETER ERROR --U- PROCESSING DATE--30OCT70  
AUTHOR--(02)--DUSHIN, YE.M., KAPUSTIN, A.N.  
COUNTRY OF INFO--USSR  
SOURCE--LENINGRAD, IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY.  
PRIBOROSTROYENIYE, NO 2, 1970, PP 12-15  
DATE PUBLISHED--70  
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., METHODS AND EQUIPMENT  
TOPIC TAGS--VOLTMETER, DIGITAL SYSTEM, DIGITAL INTEGRATOR, FREQUENCY  
STABILITY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1999/1679 STEP NO--UR/0146/70/000/002/0012/0015  
CIRC ACCESSION NO--AT0123503  
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0123503

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS STUDY THE DEPENDENCE OF INTEGRATING DIGITAL VOLTMETER ERROR ON THE FREQUENCY VARIATION OF ADDITIVE SINUSOIDAL AND NONSINUSOIDAL INTERFERENCE DURING VARIOUS PHASE SHIFTS BETWEEN THE MOMENTS OF INTEGRATION ONSET AND PASSAGE OF THE INTERFERENCE CURVE THROUGH ZERO. THEORETICAL AND EXPERIMENTAL DATA FOR THIS RELATIONSHIP ARE GIVEN. FACILITY: THE LENINGRAD ELECTROTECHNICAL INSTITUTE IMENI V. I. UL'YANOV LENIN.

UNCLASSIFIED



USSR

UDC 662.951.2.001.5

KAPUSTIN, A. M., KUZNETSOV, V. N., OVSYANNIKOV, V. V., and SHADRIN, YE. N.

"On the Effect of the Nozzle's Diameter on the Injection Ratio of GBP Type Burners"

Nauch. tr. Omsk. in-t inzh. zh.-d/ transp. (Scientific Works of the Omsk Institute of Railroad Transportation Engineers), Vol 142, 1972, pp 17-19 (from Referativnyy Zhurnal -- Teploenergetika, No 3, 1973, Abstract No 3T93 by V. A. Speysheer)

Translation: The authors conducted experimental and theoretical investigations of the dependence of the injection ratio ( $U$ ) of type GBP-140 panel burners, with full preliminary mixing, on the diameter of the gas nozzle ( $d$ ) for various gas pressures ( $p_g$ ). It is a well known fact that when  $p$  is constant, a reduction in  $d$  causes an increase in  $U$ . However, in order to insure that a furnace's heating power remains constant when the number of burners remains the same and  $d$  is reduced, it is necessary to increase  $p_g$  accordingly, so that the gas flow rate remains unchanged. These factors exert contradictory effects on  $U$ , which causes the effect of each of them to be weakened. As a result of their experiments, the authors established that a reduction in  $d$  (from 3 to 2.4 mm) can increase  $U$  somewhat. If a furnace's heating power is controlled this way, additional

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USSR

KAPUSTIN, A. M., et al., Nauch. tr. Omsk. in-t inzh. zh.-d. transp. Vol 142, 1972, pp 17-19

burners should be used. In the case where the number of working burners remains constant and a stable thermal state is maintained in the furnace, reducing  $d$  while simultaneously increasing the value of  $p_g$  will not cause any noticeable increase in  $U$ . (2 illustrations; 3 bibliog.ref<sup>s</sup>.)

2/2

- 54 -

USSR

UDC 548.0:532.783

KAPUSTIN, A. P., KUVATOV, Z. Kh., TROFIMOV, A. N., Institute of Crystallography, Academy of Sciences of the USSR, Bashkir State University

"Thermodielectric Effect With Phase Transition Between a Liquid Crystal and a Solid Crystal"

Moscow, Kristallografiya, Vol 18, No 3, May/Jun 73, pp 647-648

**Abstract:** It has long been known that an electrically charged solid phase is grown in the case of phase transitions between an isotropic liquid and a solid dielectric. In this paper the authors describe an analogous effect accompanying phase transitions between a liquid crystal and a solid crystal. A small drop of molten azoxyanisole was crystallized on a grounded substrate at a cooling rate of 5 deg/min. At the instant of crystallization, charge induction was observed on a measurement electrode placed close to the specimen. It was found that the specific charge of the solid specimen depends on the rate of crystallization. The charge increases with crystallization rate, approaching some saturation value. The charge gradually decreases with time, apparently due to the adsorption of ions from the air.

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USSR

UDC: 532

KAPUSTIN, A. P.

"Absorption and Dispersion of Ultrasonics in Liquid Crystals"

Trudy Akusticheskogo instituta (Acoustical Institute--collection of works) No. 14, 1971, pp 78-87 (from RZh--Fizika, No. 9, 1971, Abstract No. 9E51)

Translation: The results are presented of ultrasonic dispersion and absorption in fluid crystals of various types in the frequency range of 2-15 MHz. The basic data available in the literature is systematized according to absorption in a broad temperature interval, including the region of phase transitions. The possibility of ultrasonic spectroscopy in detecting the effect of minor variations in the structure of liquid crystal molecules on the characteristics of the homological series and the estimate of the dimension of the seeding phase in the pre-transition region is demonstrated. Resume

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USSR

UDC: [548-14+532.783]:533

ZHARKOVA, G. M., KAPUSTIN, A. P., Institute of Theoretical and Applied Mechanics, Siberian Department, Academy of Sciences of the USSR

"Characteristics of Some Liquid Crystals for Aerodynamic Research"

Novosibirsk, Izvestiya SO AN SSSR, Ser. tekhn. nauk, No 13, (178), vyp. 3, Oct 70, pp 65-68

Abstract: The authors discuss the use of liquid crystals for studying temperature distribution and heat flux on the surface of an aerodynamic model. The proposed method can be used for experiments at temperatures from 40 to 60°C. Two types of mixtures were used: 1) 90% cholesteryl nonanoate and 10% cholesteryl chloride; 2) 80% cholesteryl nonanoate and 20% cholesteryl propionate. A comparison of the experimental data on the color of these mixtures as a function of temperature with the data in the literature shows that the maximum deviation for the first mixture is 4%, and for the second -- 1% at wavelengths of 6300-4570 Å. Preliminary experiments in wind tunnels show satisfactory results.

1/1

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Acc. Nr:

AP0036183

Ref. Code: UR 0069

PRIMARY SOURCE: Kolloidnyy Zhurnal, 1970, Vol 32, Nr 1,  
pp 60-62

ON THE RELATIONSHIP BETWEEN MESOPHASES  
AND COLLOIDAL SYSTEMS

Kapustin, A. P.; Mart'yanova, L. I.

Summary

The temperature dependence of the ultrasound velocity and absorption in ethyl ester of 4-anisalamincinnamic acid has been studied by a pulse method. The ultrasound velocity in the phase transitions region passes through a minimum and the absorption coefficient — through a maximum. A distinct correlation has been established between the acoustic parameters and viscosity of the mesophase and the colloidal system.

D. H.

REEL/FRAME

19721002

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USSR

UDC 669.715.004.82

KAPUSTIN, D. A.

"A Completely New Method is Necessary for the Production of Aluminum Based Alloys"

Moscow, Tsvetnyye Metally, No 6, June 71, pp 59-60

Abstract: A brief review is presented of various methods for reprocessing aluminum refuse. Recommendations are given on reprocessing aluminum scrap and refuse in electric saline baths, which require the immersion of well dried materials in liquid slag, and which should find application in the automobile, tractor, and aviation industries. This method should be employed in combination with induction furnaces using liquid aluminum alloys produced in electric saline baths. The necessity of developing a rational, purely metallurgical reprocessing of aluminum scrap is stressed.

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USSR

UDC: 512.25/.26+519.3:330.115

CHERNYAVSKIY, V. S., KAPUSTIN, G. M.

"BESM-3M Computer Realization of an Algorithm for a Stochastic Programming Problem"

Tr. In-ta-mat. i mekh. AN KazSSR (Works of the Institute of Mathematics and Mechanics, Academy of Sciences of the Kazakh SSR), 1971, 2, pp 334-336 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V833)

Translation: The paper deals with one of the formulations of a two-stage problem in stochastic programming as realized on the BESM-3M digital computer. According to the given algorithm, a program is set up and calculations are done for selecting the optimum parameters for use of irrigation systems when water supply is predetermined by uncontrolled (random) river drainage. Authors' abstract.

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USSR

UDC: 539.1.074.8

KAPUSTIN, I. N., RADKEVICH, V. A., Polar Geophysics Institute, "Order of Lenin" Kola Affiliate imeni S. M. Kirov

"A Device for Determining the Multiplicities of the Neutron Component of Cosmic Rays"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 13, May 72, Author's Certificate No 335636, Division G, filed 26 Jan 70, published 11 Apr 72, p 192

Translation: This Author's Certificate introduces a device for determining the multiplicities of the neutron component of cosmic rays. The device contains a shaper of the collection period during which a shift register is used to count the neutrons in the "star" formed by the primary neutrons in the target. The device also contains scalars. As a distinguishing feature of the patent, accuracy is improved by adding a delay period shaper, a reference time interval shaper, an additional collection period shaper, series interconnected bit lines, an additional shift register, coincidence gates, reversible counters, and logic elements, each of which is connected to the input of the device and to the corresponding coincidence gate. One

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USSR

KAPUSTIN, I. N., RADKEVICH, V. A., USSR Authors Certificate No 335636

of the logic elements is connected to the output of the delay period shaper, a second is connected to the output of the reference time interval shaper, a third -- to the output of the additional collection period shaper. The outputs of the shift register are connected to the inputs of the bit line, which is connected in turn to the output of the additional collection period shaper, whose outputs are connected through the coincidence gate to the "plus" input of the reversible counters. The outputs of the additional shift register are connected through a coincidence gate to the "minus" input of the reversible counters, whose outputs are connected to the inputs of the scalars.

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USSR

UDC: 532.1.074.8

KAPUSTIN, I. N., RADKEVICH, V. A., Polar Geophysics Institute, "Order of Lenin" Kola Affiliate imeni S. M. Kirov

"A Method of Determining the Multiplicity of the Neutron Component of Cosmic Rays"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 13, May 72, Author's Certificate No 335635, Division G, filed 26 Jan 70, published 11 Apr 72, pp 191-192

Translation: This Author's Certificate introduces a method of determining the multiplicities of the neutron component of cosmic rays. The method consists in counting the neutrons in the "star" formed by the primary neutrons in the target by using neutron detectors during the collection period counted from the time of registration of the first neutron of the "star". As a distinguishing feature of the patent, accuracy is improved by introducing a correction for the effect of coincidences of registered "stars". For this purpose, the neutrons of the "star" are registered sequentially in reference time intervals following the first collection time period counted from the time of registration of the first neutron

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KAPUSTIN, I. N., RADKEVICH, V. A., USSR Author's Certificate No 335635

of the "star" after a delay period, and additional collection periods, each of which immediately follows a reference time interval. The number of additional collection periods is taken as equal to the order of the coincidences which are accounted for. The delay period is set to be longer than the lifetime of a "star", and the reference time interval is set to be longer than the maximum interval between the times of registration of the neutrons of a "star". The length of each additional collection period is set to be equal to the length of the first collection period. A count is made of the number of neutrons registered in the first and additional collection periods up to that collection period where at least one neutron has been registered in each of the preceding collection periods. The resultant "star" is registered with a "plus" sign if the last period in which a neutron was registered was odd, and with a "minus" sign if it was even. A "star" is registered only if no neutron was registered in any of the reference time intervals or in the collection time periods following those in which there was a registration.

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USSR

UDC 669.14

SMOLYARENKO, D. A., ~~KAPUSTIN, K. A.~~, SEMENOV, Yu. N., D'YAKONOVA, V. S. and  
ALYMOV, A. A.

"Investigation and Modern Production of Quality Low-Carbon Nonaging Steel for  
Cold Rolling, in High-Capacity Martin Furnaces"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISIS) (Collection of  
Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys),  
Izd-vo "Metallurgiya," No 61, 1970, pp 92-101

Translation of Abstract: Results are presented of an investigation of test  
smeltings of A8FKP steel. The most promising way of improving homogeneity of  
low-carbon nonaging steel, the surface quality and the complex of physico-  
chemical properties, including its propensity to aging is the deoxidation of  
the steel in a ladle by ferrovanadium and electric furnace ferromanganese. 5  
figures, 1 table, 6 references.

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- 44 -

AA0046270

KAPUSTIN N.K.

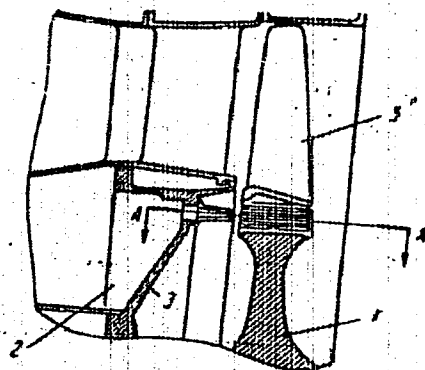
UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General,  
Derwent, 2-70

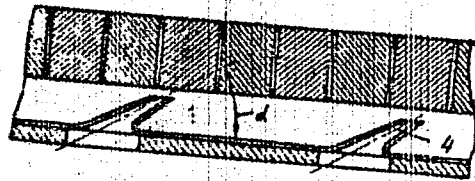
243135 TURBINE BLADE MOUNTING METHOD. The conventional method of mounting blades on the wheel of an axial turbine is by pressing the blade root into slots in the wheel. This patent seeks to improve this operation by locating the root 1 of the blade 2 in the wheel and fixing by means of flexible split rings 4 through matching holes 3 in the blade root and wheel 5. After location and fixing by the rings the final securing of the blades to the wheel follows the conventional method by running in molten metal.  
6.12.64 as 933703/24-6 N.K. KAPUSTIN (16.9.69) Bul.  
16/5.5.69. Class 46f, Int. Cl. F 02c.

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19781399

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UNCLASSIFIED  
TITLE--DYNAMICS OF PERIPHERAL VENOUS PRESSURE IN PATIENTS FOLLOWING  
CEREBRAL SURGERY -U-  
AUTHOR--(02)-KAPUSTIN, S.M., RYABUKHA, N.P.

PROCESSING DATE--27NOV70

COUNTRY OF INFO--USSR

SOURCE--VOP NEIROKHIR 24(1): 46-50. 1970

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CEREBRUM, BRAIN, SURGERY, HYPERTENSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3009/0133

STEP NO--UR/0609/70/034/001/0046/0050

CIRC ACCESSION NO--AP0138998

UNCLASSIFIED



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UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0138998

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. VENOUS PRESSURE WAS INVESTIGATED IN 91 PATIENTS AFTER BRAIN SURGERY. IN POSTOPERATIVE PATIENTS ITS MAGNITUDE WAS NOTED TO BE CLOSELY RELATED TO THE INTRACRANIAL PRESSURE, REPSIRATION AND CARDIOVASCULAR ACTIVITY. THE VENOUS PRESSURE DYNAMICS, THE ASSESSMENT OF THE GENERAL CONDITION OF THE PATIENTS, OF THE ARTERIAL PRESSURE AND RESPIRATION AID IN CORRECT PROGNOSIS. LONG TERM VENOUS HYPERTENSION IS TO BE REGARDED AS AN UNFAVORABLE PROGNOSTIC SIGN AND AS AN INDICATION FOR MORE ENERGETIC THERAPY AIMED AT REDUCING INTRACRANIAL HYPERTENSION AND NORMALIZATION OF RESPIRATION. FACILITY: S. M. KIROV Leningrad INST. POSTGRAD. MED., Leningrad, USSR.

UNCLASSIFIED

Radar

USSR

UDC 621.396.96

LIKHAREV, V. A. and KAPUSTIN, V. A.

"Detecting the Trajectory of a Target Using Surveillance Radar Data"

Moscow, Radiotekhnika, Vol 26, No 3, 1971, pp 4-9

Abstract: The authors present an optimal lock-on algorithm which resulted from a more general type of algorithm for detecting a Markovian signal against a Markovian interference background for discrete time and discrete phase space. Taking into consideration the broad prevalence of "k from n" type criteria, the authors consider methodology for determining the accumulated probabilities for correct and false automatic lock-on and the mean decisionmaking time both in the presence and absence of intersurveillance correlation. The structure of the optimal trajectory detector is given where the automatic lock-on unit is a digital automation which is realized by a program method in a specialized electronic, digital computer. Original article: two figures, three tables, six formulas, and 10 bibliographic entries.

USSR

UDC 621.771.064

NIKITIN, G. S., ZHUCHIN, V. N., KAPUSTIN, V. A., YEVSTROPOV, G. M., and  
TSVETKOV, A. I., Moscow Higher Technical School imeni Bauman, and the  
"Elektrostal'" Plant

"Rolling Deformation-Resistant Steels and Alloys in a Planetary Mill"  
Moscow, Stal', No 2, Feb 71, pp 142-144

Abstract: This paper describes planetary mills which are now being combined with ingot-producing mills for continuous and integrated casting and rolling processes. The input to the planetary mill, used for the rolling part of the combined operation, can be fed in a continuous ingot from the crystallizer at the rate of 2.0-3.5 meters per minute. Among other advantages, the planetary mill can be fully automated, requiring no complex control system for regulating the production rate, and can be used for rolling deformation-resistant steels in a narrow temperature interval. Several of these mills are in operation in foreign countries but are used only for rolling. In the VNIIMETMASH (All-Union Scientific Research and Planning Design Institute of Metallurgical Machine Building)  
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USSR

NIKITIN, G. S., et al, Stal', No 2, Feb 71, pp 142-144

a basically new planetary mill has been developed in which the metal is compressed from four sides. Known as the Tselikov-Nosal' system, the machine can result in substantial economies.

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026  
UNCLASSIFIED  
TITLE--AUTOMATIC REGULATION OF PREPOLYMER TEMPERATURE DURING THE BULK  
POLYMERIZATION OF STYRENE -U-  
AUTHOR--(02)--KAPUSTIN, V.N.; YUDAYEV, V.YE.  
COUNTRY OF INFO--USSR  
SOURCE--KHIM. PROM. UKR. 1970, (1), 36  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, MATERIALS  
TOPIC TAGS--POLYMERIZATION, IMPACT STRENGTH, POLYSTYRENE RESIN, AUTOMATIC  
CHEMICAL PROCESS CONTROL, TEMPERATURE REGULATOR  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1997/0757  
CIRC ACCESSION NO--AP0119664  
STEP NO--UR/0436/70/000/001/0036/0036  
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119664

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HIGH VISCOSITY OF THE POLYMN. MIXT. IN THE MANUF. OF HIGH IMPACT POLYSTYRENE, HINDERS THE HEAT TRANSFER FROM THE REACTING MASS TO THE COLLING JACKET OF THE REACTOR. AN AUTOMATIC REGULATOR WAS DEVELOPED FOR THE TEMP. REGULATION WITH PLUS OR MINUS 0.5PERCENT ACCURACY. THE TEMP. IS DET. AT 2 LOCATIONS: HALF WAY BETWEEN THE REACTOR WALL AND THE STIRRER AND AT THE COOLING WATER EXIT. THE THERMOMETERS ACTIVATE THE COOLING WATER AND STEAM VALVES WHICH ARE ALTERNATIVELY CLOSED OR OPENED MAINTAINING THE REQUIRED TEMP. FACILITY: GORLOV. KHIM. KOMB., GORLOVKA, USSR.

UNCLASSIFIED

USSR

UDC 542.91:547.1'118

ARBUZOV, B. A., MUSLINKIN, A. A., VIZEL', A. O., KOVALENKO, V. I., VYRINA, N. N., and KAPUSTINA, N. M., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Phospholene Glycolacrylates and Some of Their  $\alpha$ -Substituted Analogs"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 8, Aug 73, pp 1828-1833

Abstract: Experimental results are reported on the synthesis of new acrylic derivatives containing organophosphoric heteroring -- phospholeneglycolacrylates and some of their  $\alpha$ -substituted analogs. These products were obtained by reacting 1-chloro-1-oxophospholenes with glycolmonoacrylate and  $\alpha$ -substituted acrylates in inert organic solvents, in presence of triethylamine as an acceptor of HCl. Several synthetic routes have been proposed for the synthesis of phospholeneglycol- $\alpha$ -fluoroacrylates.

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USSR

UDC 621.391.622

AL'PERT, Ya. L., ZABAVINA, I. N., KAPUSTINA, O. V., and FLIGEL',  
D. S.

"Brusque Changes in Phase Velocity and Field Computations of Low-Frequency Waves in the Low-Altitude Spherical Waveguide"

Moscow, V sb. X Vses. konf. po rosnrostr. radiovoln. Tezisy dokl. Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 1--collection of works) "Nauka," 1972 pp 188-192 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A321)

Translation: Results are given of computations of the amplitude and phase of electric-field radial components  $|E_r(D,f)|$ ,  $\Psi(D,f)$ , of average  $\bar{v}(D,f)$  and differential  $v_g(D,f)$  phase velocities, in a low-altitude spherical waveguide for an isotropic conducting ionosphere and an infinitely conducting earth surface. Five illustrations, bibliography of six. A. L.

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KAPUSTYANENKO, G.G.

HYDRODYNAMIC ACCELERATION OF COMPRESSING MEDIA IN PISTON GAS-LIQUID SYSTEMS

(Abstract of a Paper by K. I. KIN, G. G. KAPUSTYANENKO, A. F. KOLESNICHENKO, V. V. HAJAKOV, Given at the Hydrodynamic Conference, pp 164-167)

1. The study of the processes of energy exchange in piston gas-liquid flows is a new and highly complicated problem. The estimates of the efficiency of transmitting energy to a liquid-metal piston. The estimates of the efficiency increment of the kinetic energy of the metal to the variation in stability of the flow can reach the limiting values on the order of 0.75 to 0.80.

The primary cause of the reduction in efficiency turns out to be disturbance of the boundaries of the liquid-metal piston. Accordingly, the methods of stabilizing the piston boundaries are acquiring urgency.

The results of experimental studies of the acceleration of a single liquid-metal piston in channels of constant and variable cross section are discussed in this paper. A study was made of the effect of the characteristic magnetic field on the intensity of the deformation of the piston.

The accelerated motion of the piston in the channel under the effect of a pressure drop on its ends is accompanied by intense deterioration of the "dry" part of the piston which is caused by the introduction of a gas cavity into the cavity. Experimental data were obtained on the rate of introduction of the piston without stabilization. These data are important for various accelerations of the piston without stabilization. These data are important for various accelerations of the piston without stabilization.

The energy characteristics of the acceleration process in channels of constant and variable cross section were obtained with and without stabilization of the piston boundaries. The essence of the applied stabilization technique is that a current is passed through the meridional cross section of the cylinder.

concentrate the metal along the direction of the current (Figure 1). In the tested channels, the field was intensified near the ends of the piston using ferromagnetic inserts between the current conducting walls. The efficiency of the piston acceleration when realizing such a stabilization procedure in a channel

SPRS 60634  
77 NOVEMBER 1973

UNCLASSIFIED  
TITLE--RESINS BASED ON CYCLOPENTADIENE -U-  
AUTHOR--(02)-KOLESNIKOV, G.I., KAPOSTYANSKAYA, ZH.V.  
COUNTRY OF INFO--USSR  
SOURCE--U.S.S.R. 267,068  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZHAKI 1970,  
DATE PUBLISHED--01APR70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--CONDENSATION REACTION, CHEMICAL PATENT, FURAN, CATALYST,  
CYCLOPENTANE, DIENE RESIN  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3004/1800  
CIRC ACCESSION NO--AA0132072  
STEP NO--UR/0482/70/000/000/0000/0000  
UNCLASSIFIED

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CIRC ACCESSION NO--AA0132072

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESINS BASED ON CYCLOPENTADIENE  
ARE PREPD. BY CONDENSING THE ALTER WITH 2 (2 ETHYL 3 OXOPROPYL)FURAN  
(1) IN THE PRESENCE OF ALK. CATALYSTS.  
POLYTECHNIC INSTITUTE. FACILITY: KRASNODAR.

UNCLASSIFIED

USSR

K UDC 620.186.1:669.018.2.8

BELYAYEVA, V. A., FEL'DGANDLER, E. G., KAPUTKIN, I. I., and SAVKINA, L. YA.,  
Central Scientific Research Institute of Ferrous Metallurgy

"Phase Composition and Intercrystalline Corrosion in 000Kh16N15M3 (EI-844) Steel"  
Moscow, Metallovedeniye, No 5, May 70, pp 6-8

Abstract: Phase composition and intercrystalline corrosion in EI-844 steel were studied after quenching samples from 1050°C and tempering between 550 and 750°C for periods ranging from 15 minutes to 1000 hours. Nominal composition of the steel was: 0.028% C, 16.04% Cr, 15.5% Ni, 2.84% Mo, 0.41% Si, and 0.003% N. (Two samples contained 0.12 and 0.13% N and one other sample contained 0.6% Nb). Carbide precipitation was done by using an electrolyte consisting of 200 g KCl + 200 ml HCl (sp. wt. 1.19) + 50 g ammonium citrate in 1000 ml water at a current density of 0.05 a/cm<sup>2</sup>. Isolation of the excess phases in a sample with 0.005% C was done by using an electrolyte of 1150 ml CH<sub>3</sub>OH + 50 ml HCl + 30 g citric acid at a current density of 0.02 a/cm<sup>2</sup> and an exposure time of five hours. Separation of the M<sub>23</sub>C<sub>6</sub> and A<sub>2</sub> phases was done by treating the anodic deposit with a mixture of hydrogen peroxide and HCl. Experimental data revealed that upon tempering the steel at 650-750°C for 100 and 1000 hours the cubic carbide M<sub>23</sub>C<sub>6</sub> is the primary precipitate. By lowering

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USSR

BELYAYEVA, V. A., et al., Metallovedeniye, No 5, May 70, pp 6-8

carbon content to less than 0.01% and alloying the steel with Si and Nb, the  $AB_2$  hexagonal phase is formed. It was also noted that there is no relationship between the tendency toward intercrystalline corrosion of the steel and an increase in the Cr content of the carbide phase or the amount of Cr-containing phases.

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USSR

UDC 669.15'24-194:621.789

BERNSHTEYN, M. L., KAPUTKINA, L. M., LAPTEV, D. V. and NIKISHOV, N. A.,  
Moscow Institute of Steel and Alloys

"Effect of Austenite Deformation on the Properties of Nickel Steels

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 2, 1972,  
pp 25-30

Abstract: Described is a study on the effect of deformation at 950°C (high-temperature strain hardening/HTSH/) and 550°C (low-temperature strain hardening/LTSH/) on the properties and martensitic structure of three steels with 0.4-0.8% C, 18-25% Ni (40N25, 60N20, 80N18) and martensitic points <0°C. The study included mechanical tests, x-ray diffraction analyses of both martensite and the volume of the low-carbon phase, as well as electron microscopic analyses of foils. The thermal stability of the state of strain hardening following reheating in a salt bath at 950°C was also studied. The mechanical properties of the steels following HTST were found to be higher than after conventional treatment. Upon deformation at various temperatures, the austenite appears to have a well developed dislocation substructure which is then inherited by the martensite and markedly affects the tempering

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BERNSHTEYN, M. L., et al, Metallovedeniye i termicheskaya obrabotka metallov,  
No 2, 1972, pp 25-30

processes. Repeated rapid hardening from 950°C retains the effect of thermal strain hardening. The dislocation structures in the austenite "inherit" some of the features of the initial dislocation structures. (6 illustrations, 1 table, 5 bibliographic references).

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1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--IRREVERSIBLE THERMODYNAMICS OF SOME PHENOMENA IN DISCONTINUOUS  
SYSTEMS. DIFFICULTIES INVOLVED IN A THERMODYNAMIC INTERPRETATION OF THE  
AUTHOR--(02)-SUDARIKOV, S.A., KAPUTSKIY, F.N.

COUNTRY OF INFO--USSR

SOURCE--VESTSI AKAD. NAVUK BELARUS. SSR, SER. KHIM. NAVUK 1970, (1),

116-18

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--IRREVERSIBLE THERMODYNAMICS, THERMAL DIFFUSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1443

STEP NO--UR/0419/70/000/001/0116/0118

CIRC ACCESSION NO--AP0118432

UNCLASSIFIED



2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118432

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT IS PROVEN THAT THERMODYNAMICS  
OF IRREVERSIBLE PROCESSES AND COMMON CALC. OF THE GRADIENT OF DIFFUSION  
POTENTIAL GIVE THE SAME RESULTS ONLY OWING TO THE FACT THAT MANY AUTHORS  
DISREGARD CROSS EFFECTS IN THEIR THERMODYNAMIC CALCNS. FACILITY:  
BELORUSS. GOS. UNIV. IM. LENINA. MINSK, USSR.

UNCLASSIFIED

USSR

UDC 669.35.71.1.24.6.782.71.620.193.27(088.8)

VOL, A. Ye., GAYDAY, P. I., GORYNIN, I. V., KAPYRIN, G. I., KUZNETSOV, Ya. Ya.,  
PROKOF'YEV, S. N., SUMINOV, N. S., CHIZHIKOV, G. I., SHUMSKIY, K. A.

"Copper-Based Alloy"

USSR Author's Certificate, No. 276417, Filed 27/10/67, Published 16/10/70. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I713P).

Translation: An alloy with increased corrosion-fatigue strength in sea water is suggested. The composition of the alloy (%) is: Al 7-9, Mn 8-12, Fe 2-4, Ni 1.5 - 4, Sn 0.1-0.5, Si 0.1-0.5, remainder - Cu. The technological properties of the alloy can be improved by introducing up to 0.3 % Mg and up to 0.2 % Be. These additions decrease the tendency of the alloy toward film formation. The alloy has (in kg/mm<sup>2</sup>)  $\sigma_b > 65$ ,  $\sigma_{0.2} > 30$ , HB 180-210,  $\sigma_{-1} > 17$  at  $10 \cdot 10^6$  cycles and is a promising shipbuilding material.

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KAPYRINA, L. M.

JPAS 55320  
1 MAR 72  
UDC: 614.777.648.18

THE PROBLEM OF DETERGENTS IN WATER HYGIENE AND SANITARY PROTECTION OF RESERVOIRS

[Article by Ye. A. Mozhayev, V. P. Oditskaya, O. I. Yuravova, Yu. V. Lin'kov, M. N. Litvinov, L. M. Kapyrina; Moscow, Vsesoyuzniy Nauchno-Issledovatskiy Tsentr Khimicheskoye i Tekhnologicheskoye Obrazovaniye, No 1, 1971, pp. 42-47]

In the last few years a new branch of the chemical industry, production of synthetic surface active substances (SAS), has gained development in several countries, including the Soviet Union. These substances, which are often called detergents (from the Latin word, detergere, to purify), are used extensively in different branches of the economy, but especially in the production of synthetic washing agents. The latter products are intensively replacing the old traditional washing agent, soap, which appeared long before our times. The great demand for synthetic SAS is due first of all to their high cleaning properties. They have a good cleaning action not only under ordinary conditions but also in an acid medium and (unlike soaps) in hard and even salt water. Washing agents based on synthetic SAS destroy and dissolve color material less than soap, and they have a washing action even at a water temperature of 20-30° (S. N. Loktev, 1964).

Unlike the production of soap, no alimentary fats are needed to manufacture such agents, and this is important from the standpoint of the economy.

Moreover, industry's interest in synthetic SAS is not solely related to their washing properties. These agents have revealed a number of other valuable properties: emulsifying, wetting, they improve technological processes and the quality of production, so that they could be used in the petroleum, construction, chemical, textile, pharmaceutical, and other industries, as well as in agriculture. The economic desirability of using SAS is the reason for the consistent increase in production thereof; considerable expansion of such production is expected in the near future.

The manufacture and extensive use of SAS cannot help but result in appearance of these agents in the environment, especially in reservoirs of water, including sources of domestic and drinking water. At the present time, of the chemicals that pollute water reservoirs, SAS are perhaps the most widespread,

UDC 619:616.858.9:616.981.136

USSR

KAPYRINA, N. A., Aspirant, All-Union Scientific Research Institute of Veterinary Virology and Microbiology

"Prophage Induction in *Listeria monocytogenes*"

Moscow, Veterinariya, No 9, 1971, pp 39-41

Abstract: The lysogenicity of *Listeria* has been little studied despite its importance as a factor in the isolation of phages and the study of problems concerning the practical application of *Listeria* bacteriophages. One hundred strains of *Listeria monocytogenes* differing in geographical origin, antigenic structure and virulence, and isolated from different species of animals and from man, were cultured in Martin's bouillon and Martin's agar pH 7.6-7.8, and irradiated with ultraviolet light. The cultures were then diluted in a phosphate buffer pH 7.6 at a ratio of 1:100, and in Petri dishes placed under the ultraviolet lamp at a distance of 40 cm for 20-25 seconds. After the irradiation, 0.05 ml of the cultures was added to 5 ml of Martin's bouillon, incubated at 22°C for 12-14 hours, after which the transparent lysates were tested for the presence of phages. The tests established the presence of induced phages in 97 of the 100 strains of *Listeria* studied, indicating that

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KAPYRINA, N. A., Veterinariya, No 9, 1971, pp 39-41

lysogenicity is a widespread phenomenon in *Listeria monocytogenes*. The lysogenic strains of *Listeria* produce C-mutants of moderate phages in the form of plaques or small negative turbid colonies, and can be used for the identification, differentiation, and detection of a given strain. The colonies are modified during passage. No relationship between the phage-producing properties and other properties of *Listeria*, such as antigenic structure, virulence, and source of origin, has been established.

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Devices

USSR

UDC: 621.391.8

LESNICHENKO, P. S., NISHCHEV, P. A., POTAPOV, Ye. P., KARABANOV, G. G.,  
DERIPALOV, B. D.

"A Device for Search of a Noise-Like Signal"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,  
No 5, Feb 71, Author's Certificate No 293304, Division H, filed 11 Aug 69,  
published 15 Jan 71, p 180

Translation: This Author's Certificate introduces a device for search of a noise-like signal with respect to time delay in correction of a pseudo-random sequence oscillator with correlation detection indicator and search interval scan. As a distinguishing feature of the patent, search is accelerated by connecting the counters for reference signals and measurement of the time of accumulation of radio pulses to a coincidence circuit whose output is connected to an integrator, to a zero-reset circuit, and to the input of the stage for feeding in correction of the integration time and the pulse elimination circuit. The output of the pulse elimination circuit is connected to the pseudorandom signal oscillator. A cadence pulse generator is connected directly to the elimination circuit, and also to a slave counter through a diode which is connected to the threshold device of the detection indicator.

1/2 021 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--CHROMATOGRAPHIC ANALYSIS OF DIBORANE, SILANE, AND GERMANE FOR  
ORGANIC IMPURITIES -U-  
AUTHOR--(05)--ZORIN, A.D., FROLOV, I.A., KARABANOV, N.T., KEDYARKIN, V.M.,  
BALABANOV, V.V.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 389-91  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--DIBORANE, SILANE, GERMANIUM COMPOUND, CHROMATOGRAPHIC  
ANALYSIS, CHEMICAL PURITY, ALKANE, ALKENE, ALDEHYDE, METHANOL, ETHANOL  
CENTRL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/2070 STEP NO--UR/0075/70/025/002/0389/0391  
CIRC ACCESSION NO--AP0125657  
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125657

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CHROMATOGRAPHIC METHOD WAS DEVELOPED FOR THE DETN. OF ORG. COMPOS. IN DIBORANE, SILANE, AND GERMANE WITH A SENSITIVITY OF 2 TIMES 10 PRIME NEGATIVES-1.6 TIMES 10 PRIME NEGATIVE4 VGL. PERCENT. INZ-600, TND-FS-M, DIATOMITE BRICK WERE USED AS SOLID SUPPORTS FOR THE DETN. OF GERMANE, SILANE, AND DIBORANE, RESP.; THE LIQ. PHASE WAS SQUALENE, VASELINE OIL AND POLYETHYLENE GLYCOL-2000, TRICRESYL PHOSPHATE AND SQUALENE. N IS THE CARRIER GAS. INDUSTRIAL DIBORANE CONTAINS C SUB6 H SUB6, PROPYLENE, C SUB6 H SUB8, C SUB5 H SUB12, MECL, AND C SUB6 H SUB14. INDUSTRIAL SILANE CONTAINS C SUB4 H SUB10, ME SUB2 O, MEETO, ET SUB2 O, ETCL, ACETYLALDEHYDE, ME SUB2 CO, MEQH, ETOH, C SUB6 H SUB6, TRIETHOXY SILANE; INDUSTRIAL GERMANE CONTAINS CH SUB4, C SUB2 H SUB4, C SUB2 H SUB6, PROPYLENE, C SUB3 H SUB7, C SUB4 H SUB10, AND ISCBUTANE. FACILITY: SCI.-RES. INST. CHEM., GORKI STATE UNIV., GORKI, USSR.

UNCLASSIFIED



USSR

UDC 622.4+541.12.03

AFANAS'YEV, G. T., BOBOLEV, V. K., KAZAROVA, YU. A., and KARABANOV, YU. F.  
(Moscow)

"Local Heat Formation During Impact Destruction of Thin Layers"

Novosibirsk, Fizika Goreniya i Vzryva, Vol 8, No 2, Jun 72, pp 299-306

Abstract: The authors studied specimens pressed from ground crystalline iron citrate hydrate for purposes of observing the thin layer destruction pattern in materials mechanically similar to explosives. It was found that after impact destruction, bands appear on the contact surfaces which can be regarded as the lines of intersection of these surfaces. To establish the mechanical similarity between iron citrate and explosives, the pressure was measured during impact with disks of varying thickness. The resultant pressure oscillograms are analogous to those for solid explosives.

A derivatographic study was made of the initial substance and part of a specimen after impact for a qualitative understanding of the chemical processes in iron citrate during heating. The heating rate was 15° per

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AFANAS'YEV, G. T., et al., Fizika Goreniya i Vzryva, Vol 8, No 2, Jun 72, pp 299-306

minute. Iron citrate loses first one molecule ( $\sim 130^\circ$ ), then the two remaining water molecules ( $\sim 165^\circ$  C). There is appreciable decomposition and darkening already during the loss of the first molecule of crystallized water. Experiments with mechanical mixtures of iron citrate with citric acid, polymethyl methacrylate, ammonium perchlorate, trotyl, etc. showed the same destruction mechanism. The destruction process during Bowden-Kozlov testing was briefly considered.

Electrical conductivity studies in experiments with the ionic compounds NaCl, AgNO<sub>3</sub>, and NH<sub>4</sub>NO<sub>3</sub> showed that destruction is accompanied by the appearance of conductivity only for rather thin specimens. But that the loss or absence of conductivity does not necessarily rule out the existence of a melt on the destruction surfaces. Tests with low-molecular organic substances and polymers revealed conductivity during destruction in the thin layer region. The conductivity is undoubtedly due to heating-up on the destruction surfaces.

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USSR

UDC 632.95

VLADIMIRTSEV, I. F., KARABANOV, Yu. V., KHRIPKO, S. S., RYBCHENKO, L. I.,  
CHEREPENKO, G. I.

"Biological Activity of Substituted  $\alpha'$ -nitrostilbenes"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiologically Active Substances. Republic Interdepartmental Collection), 1972, No 4, pp 139-142 (from RZH-Khimiya, No 2 (II), Feb 73, Abstract No 2N507)

Translation: In order to obtain plant growth regulators and fungicides, a number of derivatives of styrene and stilbene were synthesized;  $\text{PhCH}=\text{CH}_2$  suppresses the growth of oat roots in a concentration of 0.01% by 56%, and in a concentration of 0.001%, by 60%, and it suppresses the leaf growth by 45 and 21% respectively. The  $\text{PhCH}=\text{C}(\text{NO}_2)\text{Ph}$  (I) has a significant inhibiting effect. In a 0.01% concentration it suppresses the growth of oats and lettuce by 79%. The  $\text{PhCH}=\text{CHNO}_2$  not only suppresses growth but causes the plants to die. The fungicidal activity of I approaches that of figon;  $\pi\text{-Br-}$  and  $\pi\text{-Cl-I}$  are of practical interest as root and stalk growth stimulators.

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USSR

UDC 632.95

VLADIMIRTSEV, I. F., KARABANOV, Yu. V., KHRIPKO, S. S., BOLDYREV, I. V.

"Biological Activity of Benzanilines"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiologically Active Materials. Republic Interdepartmental Collection), 1972, No 4, pp 136-138 (from RZh-Khimiya, No 5 (II), 1973, Abstract No 5N640)

Translation: The results are presented from testing compounds with the formula  $RC_6H_4CH = NC_6H_4R'$  (I) ( $R = H$ , halide,  $NO_2$ , aminogroup, alkoxyl;  $R' = H$ , halide,  $NO_2$ ). The selectivity of the effect of I and the relation of the phytotoxicity to the nature of the substitution in the benzene rings are demonstrated. The 0.01% I compounds stimulate the root growth of oats, but they inhibit the growth of lettuce. The derivatives of salicylaniline have high phytotoxicity for dicotyledons, and they are of greatest interest from the point of view of finding new herbicides. 3-MeO-4- $NOC_6H_4CH = NPh$  has high stimulating activity.

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USSR

UDC 632.954 - 547.821

IVASHCHENKO, YA. N., MOSHCHITSKIY, S. D., KARABANOV, YU. V., and  
ZALESSKIY, G. A.

"Study of Herbicidal Activity of 4-Alkylaminotetrachloropyridines"

Kiev, Khimicheskaya Promyshlennost' Ukrainy, No 3, May-Jun 70,  
pp 23-24

Abstract: The authors studied the herbicidal activity of a new group of pentachloropyridine derivatives, viz. 4-amino-2,3,5,6-tetrachloropyridine and other 4-alkylamino-substituted derivatives in position 4, obtained by the interaction of pentachloropyridine with alkylamines in a medium of dioxane and methyl alcohol at 40-60°C. All the tested compounds were found to have appreciable physiological activity.

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Thin Films

USSR

UDC 669.1:539.216.2

KAZAKOV, V. G., KARABANOVA, V. P., BURAVIKHIN, V. A., SVETSOV, M. M.,  
P'YAVCHUK, N. N., and IVANOV, V. A., Irkutsk State Pedagogical Institute

"Effect of Elastic Stresses on Critical Fields of Thin Ferronickel Films"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 4, Apr 72, pp 864-866

Abstract: A study was made of the behavior of the coercive force  $H_c$  of thin magnetic ferronickel films under the action of stresses, since  $H_c$  essentially affects the quasi-static and pulsed remagnetization processes. The value of  $H_c$  in most cases is determined by the field of starting boundaries. Thus, dependence of  $H_c$  boundaries on the magnitude of elastic stresses in 75% Ni and 25% Fe films of different thicknesses (450, 800 and 1100 Å) was experimentally investigated. The results are discussed by reference to diagrams showing the deformation dependence of the starting field of domain boundaries ( $H_{st}$ ) and the width of the domain boundary. The dependence of  $H_{st}$  on the magnitude of applied stresses can be explained by the character of

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USSR

KAZAKOV, V. G., et al., Fizika Metallcv i Metallovedeniye, Vol 33, No 4,  
Apr 72, pp 864-866

structural changes of domain boundaries. Three illustrations, six  
bibliographic references.

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48

UDC 539.216.2:538.116

USSR

COROKHOV, Ye. A., KARABANOVA, V. P., and POPOV, V. I., Irkutsk Pedagogical Institute

"Effect of Perpendicular Anisotropy on the Structure of Domain Boundaries in Thin Ferromagnetic Films"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 30, No 6, Dec 70, pp 1287-1290

Abstract: Titanium alloys (Ti-3Al-7Mo-11Cr and Ti-3Al-13V-11Cr) were investigated by electron microscopy after being heated to 1100° C and cooled in water or air. Chemical composition of the two alloys was, respectively (in %): 3.23 Al, 10.4 Cr, 7.2 Mo, 0.16 Fe, 0.13 Sr, 0.08 O<sub>2</sub>, 0.008 H<sub>2</sub>, 0.04 N<sub>2</sub> and 0.040 C; 2.85 Al, 10.64 Cr, 13.15 V, 0.34Fe, 0.10 Si, 0.09 O<sub>2</sub>, 0.003 H<sub>2</sub>, 0.01 N<sub>2</sub>, and 0.021 C. The samples were annealed in the form of bars with a cross section of 15 x 15 mm and foil with a thickness of 0.25 mm. After soaking at 1100° C for 1 hour the samples were air cooled and the gas-saturated surface layer removed. The removed foil was annealed in quartz ampules (10<sup>-3</sup> mm Hg) containing titanium chips. Gas analysis of the foils after heat treating showed (on the average) 0.12% oxygen, 0.04%

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USSR

GOROKHOV, Ye. A., Fizika Metallov i Metallovedeniye, Vol 30, No 6, Dec 70,  
pp 1287-1290

carbon, 0.02% nitrogen, and 0.012% hydrogen. From this experiment it was found that in beta-titanium alloys, after annealing at 1100° C, stacking faults are formed in the process of cooling with segregation of a phase with an FCC lattice and lattice period of  $a = 4.25 \text{ \AA}$ . It is most probable that this phase is a titanium compound with interstitial elements: oxygen, carbon, and nitrogen.

2/2

1/2 018 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--STUDY OF THE SIZE AND MORPHOLOGICAL PECULIARITIES OF LACTOBACTERIUM  
CASEI -U-  
AUTHOR-(03)-CHOMAKOV, KH., KARPAROV, A., KARABASHEVA, V.  
COUNTRY OF INFO--USSR  
SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA BIOLOGICHESKAYA, 1970, NR 3,  
PP 455-459  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROCESSED ANIMAL PRODUCT, FERMENTATION, BACTERIA, CONTINUOUS  
CULTURE, MORPHOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3001/0424

STEP NO--UR/0216/70/000/003/0455/0459

CIRC ACCESSION NO--AP0126177

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0126177

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS ESTABLISHED THE SIZE AND MORPHOLOGICAL PECULIARTIES OF LACTOBACTERIUM CASEI IN 13 STRAINS ISOLATED FROM MONGOLIAN KUMISS. WHEN CULTIVATED IN BROTH AND EXAMINED WITH THE AID OF A LIGHT MICROSCOPE THE BACTERIAL CELLS LOOKED LIKE SQUARE ENDED RODS OCCURRING MOSTLY SINGLY, TWO BY TWO AND IN CHAINS OF VARYING LENGTH OF BACTERIAL CELLS 1.0-4.0 MU LONG. WHEN CULTIVATED ON AGAR MEDIUM AND EXAMINED BY MEANS OF AN ELECTRON MICROSCOPE THE BACTERIAL CELLS REPRESENTED SHORT ROUNDED RODS 0.5-8.0 MU LONG. THE THICKNESS OF THE BACTERIA CULTIVATED BOTH IN BROTH AND ON AGAR AMOUNTED TO 0.5-0.8 MU. SOME BACTERIA CULTIVATED ON AGAR APPEARED TO BE SURROUNDED BY CAPSULE.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--STARTING TEMPERATURE OF A REACTION BETWEEN OXIDES IN THE SOLID  
PHASE -U-  
AUTHOR--(04)-YUSFIN, YU.S., KARABASOV, YU.S., YUSUPKHODZHAYEV, A.A.,  
SUKHININA, V.M.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (3), 53-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS, CHEMISTRY  
TOPIC TAGS--SEMICONDUCTOR MATERIAL, CALCIUM OXIDE, TEMPERATURE EFFECT,  
CHEMICAL REACTION, ELECTRON DENSITY, STRUCTURAL ANALYSIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3007/1872 STEP NO--UR/0370/70/000/003/0053/0055  
CIRC ACCESSION NO--AP0137069  
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137069

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FOLLOWING SEQUENCE OF REACTIONS IS PROPOSED ON THE BASIS OF DTA, PETROGRAPHIC ANAL., X RAY STRUCTURAL ANAL., AND CONDUCTOMETRIC ANAL.: AT 515-20DEGREES CA(OH) SUB2 EQUALS CAO PLUS H SUB2 O, AT 670-150DEGREES CAO PLUS FE SUB2 O SUB3 EQUALS CAO.FE SUB2 O SUB3, AND AT 750-800DEGREES CAO.FE SUB2 O SUB3 PLUS CAO EQUALS 2CAO.FE SUB2 O SUB3. THE PRIMARY REACTION PRODUCT WAS ALWAYS CAO.FE SUB2 O SUB3 INDEPENDENT OF THE WT. RATIO OF REACTING SUBSTANCES. OXIDE SEMICONDUCTORS BECOME REACTIVE WHEN THE CONC. OF ELECTRONS IN THE FREE ZONE OF THE SEMICONDUCTOR SHARPLY INCREASES; THIS CORRESPONDS TO THE CHANGE FROM IMPURITY TO INTRINSIC COND. IN THE SEMICONDUCTOR OXIDE.

UNCLASSIFIED

USSR

UDC 541.15:678(744-746)-13

TASHMUKHAMEDOV, S. A., KARABAYEV, A. SH., TILLAYEV, R. S., Tashkent Order of the Red Banner of Labor State University imeni V. I. Lenin

"Radiation Copolymerization of Vinyl Acetate with Vinyl Pyrrolidone"

Tashkent, Uzbekskiy Khimicheskiy Zhurnal, No 3, 1972, pp 54-56

Abstract: A study was made of the kinetics of copolymerization of vinyl acetate with vinyl pyrrolidone as a function of the dosage, radiation power, nature of the solvents and concentration of the initial mixtures. During copolymerization of vinyl acetate with vinyl pyrrolidone in the dose range from 0.1 to 1.0 m rads, a power of 70 rads/sec in the mass, methanol and benzene, significant conversion of the monomers is observed at doses of 0.8-1.0 mrads. The copolymer is enriched with vinyl pyrrolidone for all ratios of the initial components. The values of the copolymerization constants, the specific activity and the polarity found agree with the published data [Yu. D. Semchikov, et al., *Vysokomolek. soved.*, B12, 381, 1970]. The yield of the copolymers synthesized in the mass with an integral dose of 0.5 mrads decreases from 94 to 34 percent with an increase in dose intensity from 6 to 207 rads/sec. This arises from an increase in the detachment rate of the growing chains. The exponent  $n = 0.68$  in the equation  $V = ki^n$  deviates from 0.5 toward higher values in connection with a decrease in the collision probability of the growing chains formed in the solid phase.

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USSR

UDC 577.23

GURVICH, A. A., YEREMEYEV, V. F., KARABCHIEVSKIY, YU. A., Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR, Moscow

"Recording Mitogenetic Radiation of Animal Hearts in Vive Tests Using a Photomultiplier"

Moscow, Doklady Akademii Nauk SSSR, Vol 195, No 4, Dec 70, pp 972-975

Abstract: Under narcosis and with the chest wall open, the heart of cold or warm-blooded animals emits mitogenetic radiation with sufficient intensity to be picked up by a FEU 18-A photomultiplier. It is necessary to collect the radiation on the surface of the photocathode by means of an optical device. The intensity of heart radiation is of the order of 1,000 photons/cm<sup>2</sup>·sec. The intensity of mitogenetic radiation depends on the physiological state of the organ. Progressive cooling of the heart, which occurs when the chest wall is open and the lowered metabolic level lowers the intensity of mitogenetic radiation. Along with it a weak visible radiation may appear as well.

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USSR

UDC 543.544.45:535.322.4.08

AYOLLO, Z. S., DEVDARIANI, I. V., DELYUSTO, V. V., KARABEGOV, N. A., KONRAKOV, YU. I., MCHEDLISHVILI, K. A.

"Refractometric Detector for Liquid Chromatographs"

Dokl. Vses. soveshch. Optich. i titrometrich. analizatory zhikh. sred, 1971.  
Ch. 2 (Reports of the All-Union Conference on Optical and Titrometric Analyzers of Liquid Media, 1971, Part 2), Tbilisi, 1971, pp 60-65 (from RZh--Metrologiya i Izmeritel'naya Tekhnika, No 3, Mar 72, Abstract No 3.32.1123)

Translation: A model of a refractometric detector developed at the Special Design Office for Analytical Instrument Making is described. The detector is designed for operation with a gel filtration chromatograph. The sensitivity threshold of the gel chromatograph is  $10^{-3}$ - $10^{-4}$  mg/ml of analyzed component. The sensitivity of the recording differential refractometer when measuring the index of refraction must be no worse than  $1 \cdot 10^{-8}$ - $1 \cdot 10^{-7}$ . The check of the sensitivity of the refractometer performed with respect to the height of the peak on the chromatograms demonstrated the reliability of the analysis at  $5 \cdot 10^{-5}$  mg/ml. The device was developed to investigate the molecular mass distribution of polymers, but the experimental studies demonstrated the possibility of using a differential refractometer (without a chromatograph) for any refractometric measurements. There are 4 illustrations.

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USSR

UDC 535.322.4.08

AYOLLO, E. S., DMITRIYEV, A. V., KARABEGOV, M. A., KOMRAKOV, YU. I., POZHIDAYEV, G. M., SIMONYAN, G. A.

"New Wide-Range Automatic Refractometer for Monitoring the Course of Technological Processes"

Dokl. Vses. soveshch. Optich. i Titrometrich. analizatory zhidk. sred, 1971.  
Ch. 2 (Reports of the All-Union Conference on Optical and Titrometric Analyzers  
of Liquid Media, 1971, Part 2), Tbilisi, 1971, pp 39-44 (from RZh-Metrologiya i  
Izmeritel'naya Tekhnika, No 3, Mar 72, Abstract No 3.32.1044)

Translation: At the present time, among automatic industrial refractometers, the systems with optical compensation for the deviations of the light beam, displacement of the light shadow interface and under variables which are a function of the index of refraction have become most widespread. The schematic and description of an automatic refractometer developed by the Special Design Office for Analytical Instrument Making are presented. This refractometer permits an increase in the dynamic measurement range by several times while retaining the given instrument error. It also permits a five-fold increase in the accuracy of measuring the concentration of the substance. There are 2 illustrations and 1-entry bibliography.

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USSR :

UDC 543.45(047)

AYOLLO, Z. S., DEVDARIANI, M. V., KARABEGOV, M. A., KONRAKOV, YU. I., POZHIDAYEV, G. M.

"General Industrial Automatic Refractometers of the State Instrument System"

Dokl. Vses. soveshch. Optich. i titrometrich. analizatory zhidk. sred, 1971.  
Ch. 2 (Reports of the All-Union Conference on Optical and Titrometric Analyzers of Liquid Media, 1971, Part 2), Tbilisi, 1971, pp 9-20 (from RZh--Metrologiya i Izmeritel'naya Tekhnika, No 3, Mar 72, Abstract No 3.32.1043)

Translation: The results of interrogating 178 scientific research planning and design organizations and production enterprises representing the parameters of 427 technological media are classified. The interrogation has as its purpose the discovery of the requirements imposed on automatic refractometers for liquid materials. It was found that the automatic refractometers must have technical characteristics insuring their operation under the conditions of variation of the index of refraction from 1.3 to 1.7, a difference range of the index of refraction from  $5 \cdot 10^{-4}$  to  $1 \cdot 10^{-4}$  with a measurement accuracy no worse than  $1 \cdot 10^{-4}$  to  $5 \cdot 10^{-4}\%$  at temperatures of the measured medium from +20 to +120°C with fluctuations with respect to a given point from +2 to +5° C. The analysis of the technical characteristics of the existing automatic refractometers

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USSR

AYOLLO, Z. S., et al., Dokl. Vses. soveshch. Optich. i titrimetrich. analizatory zhidk. sred, 1971. Ch. 2, Tbilisi, 1971, pp 9-20

permits establishment of the fact that the majority of them correspond to the requirements of specific technological processes, and only a few have the possibility of adjustment of the measurement ranges. A survey of methods of varying the measurement ranges of various types of automatic refractometers is presented, and their relative advantages and disadvantages are noted, including modular construction developed by the special design office of automatic refractometers for the DIRP-D and DZRP-D automatic refractometers. The correspondence of these automatic refractometers to the requirements of GOST 14941-69 is established. The USSR State Standards Committee gave permission to manufacture the instruments for delivery to the CEMA countries. The instruments are being manufactured by the Kiev Analytical Instrument Plant. There are 2 illustrations and 2 tables.

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USSR

UDC 599.32:591.5

REYMOV, R. and KARABEKOV, M., Complex Institute of Natural Sciences, Kara-Kalpak Branch, Academy of Sciences, Uzbek SSR

"Morphological and Physiological Characteristics of the House Mouse and Short-Tailed Bandicoot Rat Under Different Ecological Conditions in the Amu-Dar'ya Delta"

Tashkent, Uzbekskiy Biologicheskii Zhurnal, No 4, 1971, pp 46-48

Abstract: House mice (*Mus musculus*) and short-tailed bandicoot rats (*Nesokia indica*) of natural and synanthropic populations are very much alike in the lower reaches of the Amu-Dar'ya. Both are found in great numbers in reed beds, tamarisk thickets, near ponds and irrigation ditches, sometimes in alfalfa fields, in orchards, and (the mice in particular) in human dwellings, warehouses, and other enclosed places. The relative weight of the internal organs of the mice and rats living under natural conditions is greater than that of the synanthropic animals and the cardiac, hepatic, and renal indexes are higher.

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USSR

UDC: 535.651

GUKASOV, V. R., KARABEGOV, M. A., MAILOV, Yu. G., MILYUKOV, L. Ya., PASHKINA, M. N.

"Some Analytic Capabilities of the SFK-601 Spectrophotometer"

Optich. i Titrometrich. Analizatory Zhidk. Sred [Optical and Titrometric Analyzers for Liquid Media], Reports of All Union Conference, 1971, Part 1, Tbilisi, 1971, pp 20-24 (translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 2, 1972, Abstract No 2.32.1090 by V. S. Krasnova)

Translation: A functional diagram and results of experimental determinations of characteristics of the SFK-601 spectrophotometer (spectrocolorimeter), developed by the Special Design Bureau AP [Expansion unknown - tr] are presented. The SFK-601 is produced in a modular version using a basic monochromator unit with a modulator. The interchangeable light sources are attached to one side of the base unit, the attachments for performance of various measurements to the other side: absorptionmetry, turbidimetry, nephelometry with a goniometric device and fluorometry. The operating principle of the device is based on measurement of the difference between 2 modulated light beams passing through cuvettes with the tested and comparison fluids, then going on to 1 light receiver. The energy of the light streams is converted to electrical signals, the difference of which after amplification is recorded by

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USSR

UDC: 535.651

GUKASOV, V. R., KARABEGOV, M. A., MAILOV, Yu. G., MILYUKOV, L. Ya., PASHKINA, M. N.,  
Optich. i Titrometrich. Analizatory Zhidk. Sred [Optical and Titrometric Analyzers  
for Liquid Media], Reports of All Union Conference, 1971, Part 1, Tbilisis, 1971,  
pp 20-24 (translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya  
Tekhnika, No 2, 1972, Abstract No 2.32.1090 by V. S. Krasnova)

a microammeter. The results of investigation of the operating characteristics of  
the SKF-601 in various operating modes has shown that the error is not over 1 %,  
nonlinearity of calibrated graphs 1-2%. The reproducibility of indications is  
1% of the scale length of the device. 1 figure

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USSR

UDC:543.426:535.853.24

BRAGIN, G. Ya., KARABEGOV, M. A., SHAPIRO, E. Ye.

"Atomic-Fluorescent Spectroscopy"

Optich. i Titrometrich. Analizatory Zhidk. Sred [Optical and Titrometric Analyzers for Liquid Media], Reports of All Union Conference, 1971, Part 1, Tbilisi, 1971, pp 67-73 (translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 2, 1972, Abstract No 2.32.1095 by V. S Krasnova)

Translation: A theoretical foundation is presented for the conditions of application of atomic-fluorescent spectrophotometry (APS) as a method of determination of micro-concentrations of metals in solutions. The thresholds of sensitivity of APS are presented for analysis of metals with various sources of excitation and various atomizers. Monochromators operating in emission spectroscopy in the UV area of the spectrum, can be used as spectrometers in APS. The range of measurements of the APS includes 6 orders of concentrations and extends into the area of concentrations less than 10 mg/l. With low concentrations and constant power of exciter radiation, the relationship between intensity of fluorescence and concentration of atoms being analyzed is directly proportional. 3 figures; 2 tables; 4 biblio refs.

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USSR

KARACHENETS, D. V., MASSAL'SKIY, G. E., ANDREYEV, N. V.

"A Mass Exchange Process as a Controlled Random Process"

Upravlyayemye Sluchayn. Protsessy i Sistemy [Controlled Random Processes and Systems -- Collection of Works], Kiev, 1973, pp 158-175 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V210).

Translation: The theory of optimal control of random processes is applied to problems related to mass transfer processes, examples of which include fractional distillation, absorption and extraction.

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Circuit Theory

USSR

UDC: 621.373.001.24:621.372.41

KARACHENTSEV, A. Ya., SPEVAK, V. V.

"Investigation of the Free Oscillatory Process in a Parallel Tank Circuit With Varistor"

Elektron. tekhnika. Nauch.-tekhn. sb. Radiodetali (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 4(21), pp 95-107 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D389)

Translation: The paper gives a qualitative analysis of the conditions of the free oscillatory process in a parallel tank circuit with varistor. It is found that under certain conditions this is an oscillatory-aperiodic process. Functions are found which approximate the aperiodic segment of the process, and relationships are determined which can be used for technical calculation of the most important electrical parameters of a number of circuits with varistors. Eleven illustrations, bibliography of thirteen titles. Resumé.

USSR

UDC: 621.396.69:621.316.826

APANAS'YEV, B. K., VOL'FSON, I. B., KARACHENTSEV, A. Ya., PEL'TSMAN, I. D.,  
POMUKHIN, N. P., CHERNYAVSKIY, Yu. M.

"Experience in Developing an Automated Production Line for SN1-1-1 Varistors"

Elektron. tekhnika. Nauchno-tekhn. sb. Tekhnol. i organiz. proiz-va (Electronic Technology. Scientific and Technical Collection. Technology and Organization of Production), 1970, vyp. 4 (36), pp 3-10 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V412)

Translation: The authors describe a line which excels the level of the best known models in its technological characteristics, level of automation and the number of operations performed. The principle of unification was extensively utilized in designing the line. The line is equipped with a system for accumulating and processing data on the course of the technological process. Resumé.

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USSR

UDC: 621.396.69:621.316.826(088.8)

POTASHEV, Yu. N., KARACHENTSEV, A. Ya.

"A Varistor"

USSR Author's Certificate No 267725, filed 5 Mar 68, published 20 Jul 70  
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1V355 P)

Translation: As a distinguishing feature of the proposed varistor, the electrodes, which are made in the form of a wavy strip or a  $\Pi$ , are located in depressions. The edges of the controlling electrodes are sharpened, and between them are circular or horseshoe-shaped holes. The electrode material is applied to the walls of the depressions which face the opposite electrode.

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1/2 021 UNCLASSIFIED PROCESSING DATE--11DEC70  
TITLE--THE CHARACTER OF MOTIONS IN PAIRS OF GALAXIES -U-  
AUTHOR--KARACHENTSEV, I.D.  
COUNTRY OF INFO--USSR  
SOURCE--ASTRONOMICHESKII ZHURNAL, VOL. 47, NO. 3, 1970, P. 509-515  
DATE PUBLISHED-----70  
SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS  
TOPIC TAGS--GALAXY, CELESTIAL BODY MOTION, OSCILLATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/605013/001 STEP NO--UR/0033/70/047/003/0509/0515  
CIRC ACCESSION NO--APC140388  
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0140388

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXAMINATION OF THREE TYPES OF MOTIONS OF DOUBLE GALAXY COMPONENTS. THE CASES CONSIDERED ARE THOSE WHERE THE PAIRS HAVE A POSITIVE TOTAL ENERGY AND DISINTEGRATE, THE PAIRS' MEMBERS ROTATE IN CIRCULAR ORBITS, AND THE MEMBERS OF DOUBLE GALAXIES MOVE ON RADIAL DIRECTIONS WITH NEGATIVE TOTAL ENERGY (OSCILLATIONS). THE REGRESSION OF THE DIFFERENCE BETWEEN THE RADIAL VELOCITIES OF THE COMPONENTS ON THE PROJECTION OF THE DISTANCE BETWEEN THE COMPONENTS ARE TAKEN. THE CASE WHERE THE PAIRS DISINTEGRATE GIVES THE BEST AGREEMENT WITH OBSERVATIONAL DATA. FACILITY: KIEVSKII GOSUDARSTVENNYI UNIVERSITET, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--FISSION PROCESSES AND NONSTATIONARITY OF SYSTEMS OF GALAXIES -U-

AUTHOR--(02)-TEREBIZH, V.YU., KARACHENTSEV, I.D.

COUNTRY OF INFO--USSR

SOURCE--SOBUSHCHENIYA BYURAKANSKOY OBSERVATORII AKADEMIYA NAUK ARMYANSKOY  
SSR, 1970, NR 41, PP 99-130  
DATE PUBLISHED--70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--GALAXY, NUCLEUS, STELLAR EVOLUTION, STELLAR SYSTEM,  
FISSIONABLE MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1994/0079

STEP NO--UR/2620/70/000/041/0099/0130

CIRC ACCESSION NO--AP0114475

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0114475

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ROLE OF THE FISSION OF GALACTIC NUCLEI IN A DYNAMICAL EVOLUTION OF SYSTEMS OF GALAXIES IS INVESTIGATED. AS A FIRST STEP, THE REPRODUCTION MODEL DESCRIBED BY A POINT BRANCHING STOCHASTIC PROCESSES IS STUDIED. A RIGOROUS SOLUTION OF THE PROBLEM IS OBTAINED AND A NUMBER OF CONSEQUENCES ARE COMPARED WITH OBSERVATIONAL DATA. THE EXISTENCE OF NON STATIONARITY OF SYSTEMS OF GALAXIES PROCESSING A POSSITIVE TOTAL ENERGY IS NATURALLY EXPLAINED IN THE FRAMEWORK OF THE MODEL SUGGESTED. IT IS SHOWN THAT THE CALCULATED CHARACTERISTICS OF SYSTEMS OF GALAXIES SUCH AS THE RADIUS, THE DENSITY OF POPULATION, THE VELOCITY DISPERSION, QUOTA OF CROWDED DOUBLE GALAXIES AND SOME OTHERS RECONCILE WITH OBSERVATIONAL ONES.

UNCLASSIFIED

USSR

UDC 62 - 768.3:669.295

GESKIN, S. S., and KARACHEVTSEVA, N. V.

"Conditions for Sprak-Free Utilization of Titanium and Its Alloys"

Moscow, Khimicheskoye i Neftyanoye Mashinostroyeniye, No 2, Feb 73, pp 22-23

Abstract: The mechanism of spark formation during friction between various metals and titanium is described. Experimental results are reported of the study on the spark formation due to the friction or impact between VT-1 titanium alloy and steel, bronze, aluminum, and zinc alloys. Spark formation under such circumstances may be prevented or diminished considerably by proper selection of the materials at the point of friction or mutual impact or by proper design of the equipment. Equipment made of titanium and its alloys must have its component elements designed in a way which would minimize local overheating of titanium due to mehcanical interaction so that it would not exceed 673°K.

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USSR

UDC 621. 398.08

KARACHENTSEVA, N. YA., FRANTSUZOVA, K.D., GONCHAROVA, R.I., and ALEKSEYEVA, YE. I., Institute of Technical Cybernetics, Academy of Sciences Belorussian SSR

"Device for Monitoring the Reliability of Telemetry Data"

USSR Authors' Certificate No 306485, Cl. G08c 19/28, H 03 k 13/32, filed 29 Apr 72, published 3 Aug 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1, Jan72, Abstract No 1A341P)

Translation: For monitoring the reliability of telemetry data a device is suggested which contains a clipping amplifier and subtraction unit connected via a threshold stage with an analyzer. In order to simplify the device and increase its reliability, it contains a differential filter and detectors, with the differential filter's input connected with the clipping amplifier's output, and the differential filter's outputs connected via the detectors with the subtraction unit's input.

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USSR

DIVNOGORTSEV, G. P., KARACHENTSEVA, N. Ya., and YASHIN, V. M.

"Data Transmission in Computer Center Nets" (book)

Minsk, "Nauka i Tekhnika" Publishing House, 1971, 177 pp

TRANSLATION OF TABLE 5 (p 150);

Parameters of General-Purpose Computers  
Capable of Serving Communications Nets

Type of General-Purpose Computer	Addition Time, msec	Working Copies Capacity Thousands	Word Length, bits	Access Time, msec	Channels Served	Transmission Rate, Bauds	Multi- program Capabil- ity	Cost, Thor. Rub. or Dollars	
"Minsk-23" (USSR)	1	8-40	8	13	6	16	50	yes	210
"Minsk-32" (USSR)	40	8-32	36	5	33	32	20	"	255
"Ural-14" (USSR)	22	16-65	24	3	160,000	8	1200	"	585
"Ural-16" (USSR)	22	131-512	48	3	480,132	32	1200	"	620

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USSR

DIVNOGORTSEV, G. P., et al., "Nauka i Tekhnika" Publishing House, 1971, 177 pp

"Dnepr-2" (USSR)	25	4-65	65	—	39	—	—	760	—	"	—
"UNIVAC-418" (USA)	1,5	32-131	18	0,75	78	1	22	512	2400	"	600
"UNIVAC-490" (USA)	6,7	16-131	32	4,8	78	1	3	64	2400	"	—
"UNIVAC-9200" (USA)	104	8-16	8	1,2	9,6	—	—	—	2400	"	75
"UNIVAC-9300" (USA)	52	8-52	8	0,6	9,6	—	—	—	2400	"	545
"UNIVAC-9400" (USA)	62	31-192	8	0,6	—	—	60	24	270000	"	250
CDC-3150 (USA)	3500	8-32	24	1,75	—	—	—	—	2400	"	325
CDC-3600 (USA)	2	32-262	48	0,7	—	—	—	—	40800	"	1737
IBM-360 (USA)	0,8	16-1018	8	0,75	300	1,2	112	512	2400	"	5500
"Burroughs-8500" (USA)	0,6	65-1018	8	0,5	360	—	100	1024	2400	"	4200
"System 4-70" (England)	8,7	65-1018	8	1,5	—	2,0	350	80	4800	"	370
"Leo-326" (England)	8,4	3-32	48	2,5	—	—	1888	64	1200	"	300
"Fukon-230/30" (Japan)	56,1	8-32	6	2,2	—	18	60	160	50	"	—
"Boule-General Electric 105" (France)	7,5	4-8	18	—	—	—	2,0	—	2400	"	—

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USSR

UDC 621.315.592:546.28

CHETYRKINA, N.A., KARACHENTSEVA, Z.V., MITROFANOV, V.V., DEDEGKAYEV, T.T.,  
BELOV, N.A., ERLIKH, R.N., VASYUTINA, Z.V.

"Carbon Insertion In Epitaxial Layers Of Silicon And Effect Of Growth Conditions  
On Their Formation"

Elektron.tekhnika. Nauch.-tekhn.sb. Poluprovodn.pribory (Electronics Technology.  
Scientific-Technical Collection. Semiconductor Devices), 1971, Issue 1(58), pp  
47-50 (from RZh:Elektronika i yeye primeneniye, No 9, Sept 1972, Abstract No  
9B79)

Translation: A study is made of the defectiveness of epitaxial layers of Si  
connected with a high carbon content. It is shown that in the initial state  
epitaxial layers grown by hydrogen reduction of tetrachlorated silicon have a  
microuniformity characteristic of the presence of finely-divided insertions of  
the second phase. In the process of heat treatment at 1150° C in an oxygen at-  
mosphere, a decrease takes place of the density of microdefects and an increase  
of separation of the second phase containing carbon and oxygen. The results are  
presented of tests of preparation of epitaxial layers with a reduced carbon con-  
tent. 6 ref. Summary.

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